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SEQUENCE LISTING

<110> McLendon, George L.
<120> IAP-BINDING CARGO MOLECULES AND PEPTIDOMIMETICS FOR USE IN
DIAGNOSTIC AND THERAPEUTIC METHODS
<130> 112911.01601
<140> 10/777,946
<141> 2004-12-12
<150> 60/446,903
<151> 2004-12-12
<160> 87
<170> PatentIn version 3.2
<210> 1
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<213> Homo sapiens
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35 40 45

Arg Ala Gly Phe Leu Tyr Thr Gly Glu Gly Asp Thr Val Arg Cys Phe
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Ser Cys His Ala Ala Val Asp Arg Trp Gln Tyr Gly Asp Ser Ala Val
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Gly Arg His Arg Lys Val Ser Pro Asn Cys Arg Phe Ile Asn Gly Phe
85 90 95

Tyr Leu Glu Asn Ser Ala Thr Gln Ser Thr Asn Ser Gly Ile Gln Asn
100 105 110

Gly Gln Tyr Lys Val Glu Asn Tyr Leu Gly Ser Arg Asp His Phe Ala
115 120 125

Leu Asp Arg Pro Ser Glu Thr His Ala Asp Tyr Leu Leu Arg Thr Gly
130 135 140

Gln Val Val Asp Ile Ser Asp Thr Ile Tyr Pro Arg Asn Pro Ala Met
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145 150 155 160
 Tyr Ser Glu Glu Ala Arg Leu Lys Ser Phe Gln Asn Trp Pro Asp Tyr
 165 170 175
 Ala His Leu Thr Pro Arg Glu Leu Ala Ser Ala Gly Leu Tyr Tyr Thr
 180 185 190
 Gly Ile Gly Asp Gln Val Gln Cys Phe Cys Cys Gly Gly Lys Leu Lys
 195 200 205
 Asn Trp Glu Pro Cys Asp Arg Ala Trp Ser Glu His Arg Arg His Phe
 210 215 220
 Pro Asn Cys Phe Phe Val Leu Gly Arg Asn Leu Asn Ile Arg Ser Glu
 225 230 235 240
 Ser Asp Ala Val Ser Ser Asp Arg Asn Phe Pro Asn Ser Thr Asn Leu
 245 250 255
 Pro Arg Asn Pro Ser Met Ala Asp Tyr Glu Ala Arg Ile Phe Thr Phe
 260 265 270
 Gly Thr Trp Ile Tyr Ser Val Asn Lys Glu Gln Leu Ala Arg Ala Gly
 275 280 285
 Phe Tyr Ala Leu Gly Glu Gly Asp Lys Val Lys Cys Phe His Cys Gly
 290 295 300
 Gly Gly Leu Thr Asp Trp Lys Pro Ser Glu Asp Pro Trp Glu Gln His
 305 310 315 320
 Ala Lys Trp Tyr Pro Gly Cys Lys Tyr Leu Leu Glu Gln Lys Gly Gln
 325 330 335
 Glu Tyr Ile Asn Asn Ile His Leu Thr His Ser Leu Glu Glu Cys Leu
 340 345 350
 Val Arg Thr Thr Glu Lys Thr Pro Ser Leu Thr Arg Arg Ile Asp Asp
 355 360 365
 Thr Ile Phe Gln Asn Pro Met Val Gln Glu Ala Ile Arg Met Gly Phe
 370 375 380
 Ser Phe Lys Asp Ile Lys Lys Ile Met Glu Glu Lys Ile Gln Ile Ser
 385 390 395 400

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Gly Ser Asn Tyr Lys Ser Leu Glu Val Leu Val Ala Asp Leu Val Asn
 405 410 415

Ala Gln Lys Asp Ser Met Gln Asp Glu Ser Ser Gln Thr Ser Leu Gln
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Lys Glu Ile Ser Thr Glu Glu Gln Leu Arg Arg Leu Gln Glu Glu Lys
 435 440 445

Leu Cys Lys Ile Cys Met Asp Arg Asn Ile Ala Ile Val Phe Val Pro
 450 455 460

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Ser

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Cys Thr Pro Glu Arg Met Ala Glu Ala Gly Phe Ile His Cys Pro Thr
 35 40 45

Glu Asn Glu Pro Asp Leu Ala Gln Cys Phe Phe Cys Phe Lys Glu Leu
 50 55 60

Glu Gly Trp Glu Pro Asp Asp Asp Pro Ile Glu Glu His Lys Lys His
 65 70 75 80

Ser Ser Gly Cys Ala Phe Leu Ser Val Lys Lys Gln Phe Glu Glu Leu
 85 90 95

Thr Leu Gly Glu Phe Leu Lys Leu Asp Arg Glu Arg Ala Lys Asn Lys
 100 105 110

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 35 40 45

Asp His Val Asp Gly Gln Ile Leu Gly Gln Leu Arg Pro Leu Thr Glu
 50 55 60

Glu Glu Glu Glu Glu Gly Ala Gly Ala Thr Leu Ser Arg Gly Pro Ala
 65 70 75 80

Phe Pro Gly Met Gly Ser Glu Glu Leu Arg Leu Ala Ser Phe Tyr Asp
 85 90 95

Trp Pro Leu Thr Ala Glu Val Pro Pro Glu Leu Leu Ala Ala Ala Gly
 100 105 110

Phe Phe His Thr Gly His Gln Asp Lys Val Arg Cys Phe Phe Cys Tyr
 115 120 125

Gly Gly Leu Gln Ser Trp Lys Arg Gly Asp Asp Pro Trp Thr Glu His
 130 135 140

Ala Lys Trp Phe Pro Ser Cys Gln Phe Leu Leu Arg Ser Lys Gly Arg
 145 150 155 160

Asp Phe Val His Ser Val Gln Glu Thr His Ser Gln Leu Leu Gly Ser
 165 170 175

Trp Asp Pro Trp Glu Glu Pro Glu Asp Ala Ala Pro Val Ala Pro Ser
 180 185 190

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Val Pro Ala Ser Gly Tyr Pro Glu Leu Pro Thr Pro Arg Arg Glu Val
195 200 205

Gln Ser Glu Ser Ala Gln Glu Pro Gly Gly Val Ser Pro Ala Glu Ala
210 215 220

Gln Arg Ala Trp Trp Val Leu Glu Pro Pro Gly Ala Arg Asp Val Glu
225 230 235 240

Ala Gln Leu Arg Arg Leu Gln Glu Glu Arg Thr Cys Lys Val Cys Leu
245 250 255

Asp Arg Ala Val Ser Ile Val Phe Val Pro Cys Gly His Leu Val Cys
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35 40 45

Arg Met Ser Thr Tyr Ser Thr Phe Pro Ala Gly Val Pro Val Ser Glu
50 55 60

Arg Ser Leu Ala Arg Ala Gly Phe Tyr Tyr Thr Gly Val Asn Asp Lys
65 70 75 80

Val Lys Cys Phe Cys Cys Gly Leu Met Leu Asp Asn Trp Lys Leu Gly
85 90 95

Asp Ser Pro Ile Gln Lys His Lys Gln Leu Tyr Pro Ser Cys Ser Phe
100 105 110

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Ile Gln Asn Leu Val Ser Ala Ser Leu Gly Ser Thr Ser Lys Asn Thr
115 120 125

Ser Pro Met Arg Asn Ser Phe Ala His Ser Leu Ser Pro Thr Leu Glu
130 135 140

His Ser Ser Leu Phe Ser Gly Ser Tyr Ser Ser Leu Ser Pro Asn Pro
145 150 155 160

Leu Asn Ser Arg Ala Val Glu Asp Ile Ser Ser Ser Arg Thr Asn Pro
165 170 175

Tyr Ser Tyr Ala Met Ser Thr Glu Glu Ala Arg Phe Leu Thr Tyr His
180 185 190

Met Trp Pro Leu Thr Phe Leu Ser Pro Ser Glu Leu Ala Arg Ala Gly
195 200 205

Phe Tyr Tyr Ile Gly Pro Gly Asp Arg Val Ala Cys Phe Ala Cys Gly
210 215 220

Gly Lys Leu Ser Asn Trp Glu Pro Lys Asp Asp Ala Met Ser Glu His
225 230 235 240

Arg Arg His Phe Pro Asn Cys Pro Phe Leu Glu Asn Ser Leu Glu Thr
245 250 255

Leu Arg Phe Ser Ile Ser Asn Leu Ser Met Gln Thr His Ala Ala Arg
260 265 270

Met Arg Thr Phe Met Tyr Trp Pro Ser Ser Val Pro Val Gln Pro Glu
275 280 285

Gln Leu Ala Ser Ala Gly Phe Tyr Tyr Val Gly Arg Asn Asp Asp Val
290 295 300

Lys Cys Phe Cys Cys Asp Gly Gly Leu Arg Cys Trp Glu Ser Gly Asp
305 310 315 320

Asp Pro Trp Val Glu His Ala Lys Trp Phe Pro Arg Cys Glu Phe Leu
325 330 335

Ile Arg Met Lys Gly Gln Glu Phe Val Asp Glu Ile Gln Gly Arg Tyr
340 345 350

Pro His Leu Leu Glu Gln Leu Leu Ser Thr Ser Asp Thr Thr Gly Glu
355 360 365

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Glu Asn Ala Asp Pro Pro Ile Ile His Phe Gly Pro Gly Glu Ser Ser
 370 375 380
 Ser Glu Asp Ala Val Met Met Asn Thr Pro Val Val Lys Ser Ala Leu
 385 390 395 400
 Glu Met Gly Phe Asn Arg Asp Leu Val Lys Gln Thr Val Gln Ser Lys
 405 410 415
 Ile Leu Thr Thr Gly Glu Asn Tyr Lys Thr Val Asn Asp Ile Val Ser
 420 425 430
 Ala Leu Leu Asn Ala Glu Asp Glu Lys Arg Glu Glu Glu Lys Glu Lys
 435 440 445
 Gln Ala Glu Glu Met Ala Ser Asp Asp Leu Ser Leu Ile Arg Lys Asn
 450 455 460
 Arg Met Ala Leu Phe Gln Gln Leu Thr Cys Val Leu Pro Ile Leu Asp
 465 470 475 480
 Asn Leu Leu Lys Ala Asn Val Ile Asn Lys Gln Glu His Asp Ile Ile
 485 490 495
 Lys Gln Lys Thr Gln Ile Pro Leu Gln Ala Arg Glu Leu Ile Asp Thr
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 Ile Leu Val Lys Gly Asn Ala Ala Ala Asn Ile Phe Lys Asn Cys Leu
 515 520 525
 Lys Glu Ile Asp Ser Thr Leu Tyr Lys Asn Leu Phe Val Asp Lys Asn
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 Gln Leu Arg Arg Leu Gln Glu Glu Arg Thr Cys Lys Val Cys Met Asp
 565 570 575
 Lys Glu Val Ser Val Val Phe Ile Pro Cys Gly His Leu Val Val Cys
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 35 40 45
 Ser Leu Ala Arg Ala Gly Phe Tyr Tyr Thr Gly Val Asn Asp Lys Val
 50 55 60
 Lys Cys Phe Cys Cys Gly Leu Met Leu Asp Asn Trp Lys Arg Gly Asp
 65 70 75 80
 Ser Pro Thr Glu Lys His Lys Lys Leu Tyr Pro Ser Cys Arg Phe Val
 85 90 95
 Gln Ser Leu Asn Ser Val Asn Asn Leu Glu Ala Thr Ser Gln Pro Thr
 100 105 110
 Phe Pro Ser Ser Val Thr Asn Ser Thr His Ser Leu Leu Pro Gly Thr
 115 120 125
 Glu Asn Ser Gly Tyr Phe Arg Gly Ser Tyr Ser Asn Ser Pro Ser Asn
 130 135 140
 Pro Val Asn Ser Arg Ala Asn Gln Asp Phe Ser Ala Leu Met Arg Ser
 145 150 155 160
 Ser Tyr His Cys Ala Met Asn Asn Glu Asn Ala Arg Leu Leu Thr Phe
 165 170 175
 Gln Thr Trp Pro Leu Thr Phe Leu Ser Pro Thr Asp Leu Ala Lys Ala
 180 185 190
 Gly Phe Tyr Tyr Ile Gly Pro Gly Asp Arg Val Ala Cys Phe Ala Cys
 195 200 205
 Gly Gly Lys Leu Ser Asn Trp Glu Pro Lys Asp Asn Ala Met Ser Glu
 210 215 220

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His Leu Arg His Phe Pro Lys Cys Pro Phe Ile Glu Asn Gln Leu Gln
 225 230 235 240
 Asp Thr Ser Arg Tyr Thr Val Ser Asn Leu Ser Met Gln Thr His Ala
 245 250 255
 Ala Arg Phe Lys Thr Phe Phe Asn Trp Pro Ser Ser Val Leu Val Asn
 260 265
 Pro Glu Gln Leu Ala Ser Ala Gly Phe Tyr Tyr Val Gly Asn Ser Asp
 275 280 285
 Asp Val Lys Cys Phe Cys Cys Asp Gly Gly Leu Arg Cys Trp Glu Ser
 290 295 300
 Gly Asp Asp Pro Trp Val Gln His Ala Lys Trp Phe Pro Arg Cys Glu
 305 310 315 320
 Tyr Leu Ile Arg Ile Lys Gly Gln Glu Phe Ile Arg Gln Val Gln Ala
 325 330 335
 Ser Tyr Pro His Leu Leu Glu Gln Leu Leu Ser Thr Ser Asp Ser Pro
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 Gly Asp Glu Asn Ala Glu Ser Ser Ile Ile His Phe Glu Pro Gly Glu
 355 360 365
 Asp His Ser Glu Asp Ala Ile Met Met Asn Thr Pro Val Ile Asn Ala
 370 375 380
 Ala Val Glu Met Gly Phe Ser Arg Ser Leu Val Lys Gln Thr Val Gln
 385 390 395 400
 Arg Lys Ile Leu Ala Thr Gly Glu Asn Tyr Arg Leu Val Asn Asp Leu
 405 410 415
 Val Leu Asp Leu Leu Asn Ala Glu Asp Glu Ile Arg Glu Glu Glu Arg
 420 425 430
 Glu Arg Ala Thr Glu Glu Lys Glu Ser Asn Asp Leu Leu Leu Ile Arg
 435 440 445
 Lys Asn Arg Met Ala Leu Phe Gln His Leu Thr Cys Val Ile Pro Ile
 450 455 460
 Leu Asp Ser Leu Leu Thr Ala Gly Ile Ile Asn Glu Gln Glu His Asp
 Page 9

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465 470 475 480
 Val Ile Lys Gln Lys Thr Gln Thr Ser Leu Gln Ala Arg Glu Leu Ile
 485 490 495
 Asp Thr Ile Leu Val Lys Gly Asn Ile Ala Ala Thr Val Phe Arg Asn
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 Ser Leu Gln Glu Ala Glu Ala Val Leu Tyr Glu His Leu Phe Val Gln
 515 520 525
 Gln Asp Ile Lys Tyr Ile Pro Thr Glu Asp Val Ser Asp Leu Pro Val
 530 535 540
 Glu Glu Gln Leu Arg Arg Leu Gln Glu Glu Arg Thr Cys Lys Val Cys
 545 550 555 560
 Met Asp Lys Glu Val Ser Ile Val Phe Ile Pro Cys Gly His Leu Val
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 Arg Cys Phe Ser Glu Leu Ile Arg Pro Trp His Lys Thr Val Thr Ile
 35 40 45
 Gly Phe Gly Val Thr Leu Cys Ala Val Pro Ile Ala Gln Lys Ser Glu
 50 55 60
 Pro His Ser Leu Ser Ser Glu Ala Leu Met Arg Arg Ala Val Ser Leu
 65 70 75 80
 Val Thr Asp Ser Thr Ser Thr Phe Leu Ser Gln Thr Thr Tyr Ala Leu
 Page 10

85

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90

95

Ile Glu Ala Ile Thr Glu Tyr Thr Lys Ala Val Tyr Thr Leu Thr Ser
100 105 110

Leu Tyr Arg Gln Tyr Thr Ser Leu Leu Gly Lys Met Asn Ser Glu Glu
115 120 125

Glu Asp Glu Val Trp Gln Val Ile Ile Gly Ala Arg Ala Glu Met Thr
130 135 140

Ser Lys His Gln Glu Tyr Leu Lys Leu Glu Thr Thr Trp Met Thr Ala
145 150 155 160

Val Gly Leu Ser Glu Met Ala Ala Glu Ala Ala Tyr Gln Thr Gly Ala
165 170 175

Asp Gln Ala Ser Ile Thr Ala Arg Asn His Ile Gln Leu Val Lys Leu
180 185 190

Gln Val Glu Glu Val His Gln Leu Ser Arg Lys Ala Glu Thr Lys Leu
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<212> PRT

<213> Homo sapiens

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35 40 45

Gln Gln Gln Arg Ala Ala Met Leu Ile Lys Met Ile Leu Lys Lys Asp
50 55 60

Asn Asp Ser Tyr Val Ser Phe Tyr Asn Ala Leu Leu His Glu Gly Tyr
Page 11

65 70 75 80
 Lys Asp Leu Ala Ala Leu Leu His Asp Gly Ile Pro Val Val Ser Ser
 85 90
 Ser Ser Gly Lys Asp Ser Val Ser Gly Ile Thr Ser Tyr Val Arg Thr
 100 105 110
 Val Leu Cys Glu Gly Gly Val Pro Gln Arg Pro Val Val Phe Val Thr
 115 120 125
 Arg Lys Lys Leu Val Asn Ala Ile Gln Gln Lys Leu Ser Lys Leu Lys
 130 135 140
 Gly Glu Pro Gly Trp Val Thr Ile His Gly Met Ala Gly Cys Gly Lys
 145 150 155 160
 Ser Val Leu Ala Ala Glu Ala Val Arg Asp His Ser Leu Leu Glu Gly
 165 170 175
 Cys Phe Pro Gly Gly Val His Trp Val Ser Val Gly Lys Gln Asp Lys
 180 185 190
 Ser Gly Leu Leu Met Lys Leu Gln Asn Leu Cys Thr Arg Leu Asp Gln
 195 200 205
 Asp Glu Ser Phe Ser Gln Arg Leu Pro Leu Asn Ile Glu Glu Ala Lys
 210 215 220
 Asp Arg Leu Arg Ile Leu Met Leu Arg Lys His Pro Arg Ser Leu Leu
 225 230 235 240
 Ile Leu Asp Asp Val Trp Asp Ser Trp Val Leu Lys Ala Phe Asp Ser
 245 250 255
 Gln Cys Gln Ile Leu Leu Thr Thr Arg Asp Lys Ser Val Thr Asp Ser
 260 265 270
 Val Met Gly Pro Lys Tyr Val Val Pro Val Glu Ser Ser Leu Gly Lys
 275 280 285
 Glu Lys Gly Leu Glu Ile Leu Ser Leu Phe Val Asn Met Lys Lys Ala
 290 295 300
 Asp Leu Pro Glu Gln Ala His Ser Ile Ile Lys Glu Cys Lys Gly Ser
 305 310 315 320

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Pro Leu Val Val Ser Leu Ile Gly Ala Leu Leu Arg Asp Phe Pro Asn
 325 330 335
 Arg Trp Glu Tyr Tyr Leu Lys Gln Leu Gln Asn Lys Gln Phe Lys Arg
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 Ile Arg Lys Ser Ser Ser Tyr Asp Tyr Glu Ala Leu Asp Glu Ala Met
 355 360 365
 Ser Ile Ser Val Glu Met Leu Arg Glu Asp Ile Lys Asp Tyr Tyr Thr
 370 375 380
 Asp Leu Ser Ile Leu Gln Lys Asp Val Lys Val Pro Thr Lys Val Leu
 385 390 395 400
 Cys Ile Leu Trp Asp Met Glu Thr Glu Glu Val Glu Asp Ile Leu Gln
 405 410 415
 Glu Phe Val Asn Lys Ser Leu Leu Phe Cys Asp Arg Asn Gly Lys Ser
 420 425 430
 Phe Arg Tyr Tyr Leu His Asp Leu Gln Val Asp Phe Leu Thr Glu Lys
 435 440 445
 Asn Cys Ser Gln Leu Gln Asp Leu His Lys Lys Ile Ile Thr Gln Phe
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 Gln Arg Tyr His Gln Pro His Thr Leu Ser Pro Asp Gln Glu Asp Cys
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 Met Tyr Trp Tyr Asn Phe Leu Ala Tyr His Met Ala Ser Ala Lys Met
 485 490 495
 His Lys Glu Leu Cys Ala Leu Met Phe Ser Leu Asp Trp Ile Lys Ala
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 Lys Thr Glu Leu Val Gly Pro Ala His Leu Ile His Glu Phe Val Glu
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 Tyr Arg His Ile Leu Asp Glu Lys Asp Cys Ala Val Ser Glu Asn Phe
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 Gln Glu Phe Leu Ser Leu Asn Gly His Leu Leu Gly Arg Gln Pro Phe
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 565 570 575

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 580 585 590
 Leu Tyr Leu Glu Trp Ile Asn Lys Lys Asn Ile Thr Asn Leu Ser Arg
 595 600 605
 Leu Val Val Arg Pro His Thr Asp Ala Val Tyr His Ala Cys Phe Ser
 610 615 620
 Glu Asp Gly Gln Arg Ile Ala Ser Cys Gly Ala Asp Lys Thr Leu Gln
 625 630 635
 Val Phe Lys Ala Glu Thr Gly Glu Lys Leu Leu Glu Ile Lys Ala His
 645 650 655
 Glu Asp Glu Val Leu Cys Cys Ala Phe Ser Thr Asp Asp Arg Phe Ile
 660 665 670
 Ala Thr Cys Ser Val Asp Lys Lys Val Lys Ile Trp Asn Ser Met Thr
 675 680 685
 Gly Glu Leu Val His Thr Tyr Asp Glu His Ser Glu Gln Val Asn Cys
 690 695 700
 Cys His Phe Thr Asn Ser Ser His His Leu Leu Leu Ala Thr Gly Ser
 705 710 715 720
 Ser Asp Cys Phe Leu Lys Leu Trp Asp Leu Asn Gln Lys Glu Cys Arg
 725 730 735
 Asn Thr Met Phe Gly His Thr Asn Ser Val Asn His Cys Arg Phe Ser
 740 745 750
 Pro Asp Asp Lys Leu Leu Ala Ser Cys Ser Ala Asp Gly Thr Leu Lys
 755 760 765
 Leu Trp Asp Ala Thr Ser Ala Asn Glu Arg Lys Ser Ile Asn Val Lys
 770 775 780
 Gln Phe Phe Leu Asn Leu Glu Asp Pro Gln Glu Asp Met Glu Val Ile
 785 790 795 800
 Val Lys Cys Cys Ser Trp Ser Ala Asp Gly Ala Arg Ile Met Val Ala
 805 810 815
 Ala Lys Asn Lys Ile Phe Leu Phe Asp Ile His Thr Ser Gly Leu Leu
 820 825 830

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Gly Glu Ile His Thr Gly His His Ser Thr Ile Gln Tyr Cys Asp Phe
 835 840 845
 Ser Pro Gln Asn His Leu Ala Val Val Ala Leu Ser Gln Tyr Cys Val
 850 855 860
 Glu Leu Trp Asn Thr Asp Ser Arg Ser Lys Val Ala Asp Cys Arg Gly
 865 870 875 880
 His Leu Ser Trp Val His Gly Val Met Phe Ser Pro Asp Gly Ser Ser
 885 890 895
 Phe Leu Thr Ser Ser Asp Asp Gln Thr Ile Arg Leu Trp Glu Thr Lys
 900 905 910
 Lys Val Cys Lys Asn Ser Ala Val Met Leu Lys Gln Glu Val Asp Val
 915 920 925
 Val Phe Gln Glu Asn Glu Val Met Val Leu Ala Val Asp His Ile Arg
 930 935 940
 Arg Leu Gln Leu Ile Asn Gly Arg Thr Gly Gln Ile Asp Tyr Leu Thr
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 Glu Ala Gln Val Ser Cys Cys Cys Leu Ser Pro His Leu Gln Tyr Ile
 965 970 975
 Ala Phe Gly Asp Glu Asn Gly Ala Ile Glu Ile Leu Glu Leu Val Asn
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 Asn Arg Ile Phe Gln Ser Arg Phe Gln His Lys Lys Thr Val Trp His
 995 1000 1005
 Ile Gln Phe Thr Ala Asp Glu Lys Thr Leu Ile Ser Ser Ser Asp
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 1040 1045 1050
 Lys Asn Ser Arg Leu Leu Ser Trp Ser Phe Asp Gly Thr Val Lys
 1055 1060 1065
 Val Trp Asn Ile Ile Thr Gly Asn Lys Glu Lys Asp Phe Val Cys
 Page 15

1070

1075

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1080

His Gln Gly Thr Val Leu Ser Cys Asp Ile Ser His Asp Ala Thr
1085 1090 1095

Lys Phe Ser Ser Thr Ser Ala Asp Lys Thr Ala Lys Ile Trp Ser
1100 1105 1110

Phe Asp Leu Leu Leu Pro Leu His Glu Leu Arg Gly His Asn Gly
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Cys Val Arg Cys Ser Ala Phe Ser Val Asp Ser Thr Leu Leu Ala
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Thr Gly Asp Asp Asn Gly Glu Ile Arg Ile Trp Asn Val Ser Asn
1145 1150 1155

Gly Glu Leu Leu His Leu Cys Ala Pro Leu Ser Glu Glu Gly Ala
1160 1165 1170

Ala Thr His Gly Gly Trp Val Thr Asp Leu Cys Phe Ser Pro Asp
1175 1180 1185

Gly Lys Met Leu Ile Ser Ala Gly Gly Tyr Ile Lys Trp Trp Asn
1190 1195 1200

Val Val Thr Gly Glu Ser Ser Gln Thr Phe Tyr Thr Asn Gly Thr
1205 1210 1215

Asn Leu Lys Lys Ile His Val Ser Pro Asp Phe Lys Thr Tyr Val
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<213> Homo sapiens

<400> 8

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20 25 30

Glu Leu Phe Arg Pro His Met Ile Glu Asp Ile Gln Arg Ala Gly Ser
Page 16

35

40

45

Gly Ser Arg Arg Asp Gln Ala Arg Gln Leu Ile Ile Asp Leu Glu Thr
 50 55 60

Arg Gly Ser Gln Ala Leu Pro Leu Phe Ile Ser Cys Leu Glu Asp Thr
 65 70 75 80

Gly Gln Asp Met Leu Ala Ser Phe Leu Arg Thr Asn Arg Gln Ala Ala
 85 90 95

Lys Leu Ser Lys Pro Thr Leu Glu Asn Leu Thr Pro Val Val Leu Arg
 100 105 110

Pro Glu Ile Arg Lys Pro Glu Val Leu Arg Pro Glu Thr Pro Arg Pro
 115 120 125

Val Asp Ile Gly Ser Gly Gly Phe Gly Asp Val Gly Ala Leu Glu Ser
 130 135 140

Leu Arg Gly Asn Ala Asp Leu Ala Tyr Ile Leu Ser Met Glu Pro Cys
 145 150 155 160

Gly His Cys Leu Ile Ile Asn Asn Val Asn Phe Cys Arg Glu Ser Gly
 165 170 175

Leu Arg Thr Arg Thr Gly Ser Asn Ile Asp Cys Glu Lys Leu Arg Arg
 180 185 190

Arg Phe Ser Ser Leu His Phe Met Val Glu Val Lys Gly Asp Leu Thr
 195 200 205

Ala Lys Lys Met Val Leu Ala Leu Leu Glu Leu Ala Gln Gln Asp His
 210 215 220

Gly Ala Leu Asp Cys Cys Val Val Val Ile Leu Ser His Gly Cys Gln
 225 230 235 240

Ala Ser His Leu Gln Phe Pro Gly Ala Val Tyr Gly Thr Asp Gly Cys
 245 250 255

Pro Val Ser Val Glu Lys Ile Val Asn Ile Phe Asn Gly Thr Ser Cys
 260 265 270

Pro Ser Leu Gly Gly Lys Pro Lys Leu Phe Phe Ile Gln Ala Cys Gly
 275 280 285

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Gly Glu Gln Lys Asp His Gly Phe Glu Val Ala Ser Thr Ser Pro Glu
 290 295 300

Asp Glu Ser Pro Gly Ser Asn Pro Glu Pro Asp Ala Thr Pro Phe Gln
 305 310 315 320

Glu Gly Leu Arg Thr Phe Asp Gln Leu Asp Ala Ile Ser Ser Leu Pro
 325 330 335

Thr Pro Ser Asp Ile Phe Val Ser Tyr Ser Thr Phe Pro Gly Phe Val
 340 345 350

Ser Trp Arg Asp Pro Lys Ser Gly Ser Trp Tyr Val Glu Thr Leu Asp
 355 360 365

Asp Ile Phe Glu Gln Trp Ala His Ser Glu Asp Leu Gln Ser Leu Leu
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 405 410 415

<210> 9

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<213> Homo sapiens

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 35 40 45

Ile Ile Asn Asn Lys Asn Phe His Lys Ser Thr Gly Met Thr Ser Arg
 50 55 60

Ser Gly Thr Asp Val Asp Ala Ala Asn Leu Arg Glu Thr Phe Arg Asn
 65 70 75 80

Leu Lys Tyr Glu Val Arg Asn Lys Asn Asp Leu Thr Arg Glu Glu Ile
 85 90 95

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Val Glu Leu Met Arg Asp Val Ser Lys Glu Asp His Ser Lys Arg Ser
100 105 110

Ser Phe Val Cys Val Leu Leu Ser His Gly Glu Glu Gly Ile Ile Phe
115 120 125

Gly Thr Asn Gly Pro Val Asp Leu Lys Lys Ile Thr Asn Phe Phe Arg
130 135 140

Gly Asp Arg Cys Arg Ser Leu Thr Gly Lys Pro Lys Leu Phe Ile Ile
145 150 155 160

Gln Ala Cys Arg Gly Thr Glu Leu Asp Cys Gly Ile Glu Thr Asp Ser
165 170 175

Gly Val Asp Asp Asp Met Ala Cys His Lys Ile Pro Val Asp Ala Asp
180 185 190

Phe Leu Tyr Ala Tyr Ser Thr Ala Pro Gly Tyr Tyr Ser Trp Arg Asn
195 200 205

Ser Lys Asp Gly Ser Trp Phe Ile Gln Ser Leu Cys Ala Met Leu Lys
210 215 220

Gln Tyr Ala Asp Lys Leu Glu Phe Met His Ile Leu Thr Arg Val Asn
225 230 235 240

Arg Lys Val Ala Thr Glu Phe Glu Ser Phe Ser Phe Asp Ala Thr Phe
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His Ala Lys Lys Gln Ile Pro Cys Ile Val Ser Met Leu Thr Lys Glu
260 265 270

Leu Tyr Phe Tyr His
275

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<211> 438

<212> PRT

<213> Drosophila melanogaster

<400> 10

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Asp Gln Val Asp Asn Asn Thr Asn Ala Thr Gln Leu Phe Lys Asn Asn
20 25 30

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Ile Asn Lys Thr Arg Met Asn Asp Leu Asn Arg Glu Glu Thr Arg Leu
 35 40 45
 Lys Thr Phe Thr Asp Trp Pro Leu Asp Trp Leu Asp Lys Arg Gln Leu
 50 55 60
 Ala Gln Thr Gly Met Tyr Phe Thr His Ala Gly Asp Lys Val Lys Cys
 65 70 75 80
 Phe Phe Cys Gly Val Glu Ile Gly Cys Trp Glu Gln Glu Asp Gln Pro
 85 90 95
 Val Pro Glu His Gln Arg Trp Ser Pro Asn Cys Pro Leu Leu Arg Arg
 100 105 110
 Arg Thr Thr Asn Asn Val Pro Ile Asn Ala Glu Ala Leu Asp Arg Ile
 115 120 125
 Leu Pro Pro Ile Ser Tyr Asp Ile Cys Gly Ala Asn Asp Ser Thr Leu
 130 135 140
 Glu Met Arg Glu His Ala Tyr Ala Glu Gly Val Ile Pro Met Ser Gln
 145 150 155 160
 Leu Ile Gln Ser Ile Gly Met Asn Ala Val Asn Ala Ala Gly Ser Val
 165 170 175
 Thr Gly Thr Ala Ala Pro Gln Pro Arg Val Thr Val Ala Thr His Ala
 180 185 190
 Ser Thr Ala Thr Gln Ala Thr Gly Asp Val Gln Pro Glu Thr Cys Arg
 195 200 205
 Pro Ser Ala Ala Ser Gly Asn Tyr Phe Pro Gln Tyr Pro Glu Tyr Ala
 210 215 220
 Ile Glu Thr Ala Arg Leu Arg Thr Phe Glu Ala Trp Pro Arg Asn Leu
 225 230 235 240
 Lys Gln Lys Pro His Gln Leu Ala Glu Ala Gly Phe Phe Tyr Thr Gly
 245 250 255
 Val Gly Asp Arg Val Arg Cys Phe Ser Cys Gly Gly Gly Leu Met Asp
 260 265 270
 Trp Asn Asp Asn Asp Glu Pro Trp Glu Gln His Ala Leu Trp Leu Ser
 275 280 285

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Gln Cys Arg Phe Val Lys Leu Met Lys Gly Gln Leu Tyr Ile Asp Thr
290 295 300

Val Ala Ala Lys Pro Val Leu Ala Glu Glu Lys Glu Glu Ser Thr Ser
305 310 315 320

Ile Gly Gly Asp Thr Val Ala Ser Thr Gln Ala Ser Glu Glu Glu Gln
325 330 335

Gln Thr Ser Leu Ser Ser Glu Glu Ala Val Ser Gly Asp Val Ala Pro
340 345 350

Ser Val Ala Pro Thr Ala Ala Thr Arg Ile Phe Asn Lys Ile Val Glu
355 360 365

Ala Thr Ala Val Ala Thr Pro Ser Thr Asn Ser Ser Gly Ser Thr Ser
370 375 380

Ile Pro Glu Glu Lys Leu Cys Lys Ile Cys Tyr Gly Ala Glu Tyr Asn
385 390 395 400

Thr Ala Phe Leu Pro Cys Gly His Val Val Ala Cys Ala Lys Cys Ala
405 410 415

Ser Ser Val Thr Lys Cys Pro Leu Cys Arg Lys Pro Phe Thr Asp Val
420 425 430

Met Arg Val Tyr Phe Ser
435

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<213> *Drosophila melanogaster*

<400> 11

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20 25 30

Asn Gly Phe Phe Ala Thr Gly Asn Trp Leu Glu Ala Glu Cys His Phe
35 40 45

Cys His Val Arg Ile Asp Arg Trp Glu Tyr Gly Asp Gln Val Ala Glu
50 55 60

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Arg His Arg Arg Ser Ser Pro Ile Cys Ser Met Val Leu Ala Pro Asn
 65 70 75 80
 His Cys Gly Asn Val Pro Arg Ser Gln Glu Ser Asp Asn Glu Gly Asn
 85 90 95
 Ser Val Val Asp Ser Pro Glu Ser Cys Ser Cys Pro Asp Leu Leu Leu
 100 105 110
 Glu Ala Asn Arg Leu Val Thr Phe Lys Asp Trp Pro Asn Pro Asn Ile
 115 120 125
 Thr Pro Gln Ala Leu Ala Lys Ala Gly Phe Tyr Tyr Leu Asn Arg Leu
 130 135 140
 Asp His Val Lys Cys Val Trp Cys Asn Gly Val Ile Ala Lys Trp Glu
 145 150 155 160
 Lys Asn Asp Asn Ala Phe Glu Glu His Lys Arg Phe Phe Pro Gln Cys
 165 170 175
 Pro Arg Val Gln Met Gly Pro Leu Ile Glu Phe Ala Thr Gly Lys Asn
 180 185 190
 Leu Asp Glu Leu Gly Ile Gln Pro Thr Thr Leu Pro Leu Arg Pro Lys
 195 200 205
 Tyr Ala Cys Val Asp Ala Arg Leu Arg Thr Phe Thr Asp Trp Pro Ile
 210 215 220
 Ser Asn Ile Gln Pro Ala Ser Ala Leu Ala Gln Ala Gly Leu Tyr Tyr
 225 230 235 240
 Gln Lys Ile Gly Asp Gln Val Arg Cys Phe His Cys Asn Ile Gly Leu
 245 250 255
 Arg Ser Trp Gln Lys Glu Asp Glu Pro Trp Phe Glu His Ala Lys Trp
 260 265 270
 Ser Pro Lys Cys Gln Phe Val Leu Leu Ala Lys Gly Pro Ala Tyr Val
 275 280 285
 Ser Glu Val Leu Ala Thr Thr Ala Ala Asn Ala Ser Ser Pro Pro Ala
 290 295 300
 Thr Ala Pro Ala Pro Thr Leu Gln Ala Asp Val Leu Met Asp Glu Ala
 305 310 315 320

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Pro Ala Lys Glu Ala Leu Ala Leu Gly Ile Asp Gly Gly Val Val Arg
325 330 335

Asn Ala Ile Gln Arg Lys Leu Leu Ser Ser Gly Cys Ala Phe Ser Thr
340 345 350

Leu Asp Glu Leu Leu His Asp Ile Phe Asp Asp Ala Gly Ala Gly Ala
355 360 365

Ala Leu Glu Val Arg Glu Pro Pro Glu Pro Ser Ala Pro Phe Ile Glu
370 375 380

Pro Cys Gln Ala Thr Thr Ser Lys Ala Ala Ser Val Pro Ile Pro Val
385 390 395 400

Ala Asp Ser Ile Pro Ala Lys Pro Gln Ala Ala Glu Ala Val Ala Asn
405 410 415

Ile Ser Lys Ile Thr Asp Glu Ile Gln Lys Met Ser Val Ala Thr Pro
420 425 430

Asn Gly Asn Leu Ser Leu Glu Glu Glu Asn Arg Gln Leu Lys Asp Ala
435 440 445

Arg Leu Cys Lys Val Cys Leu Asp Glu Glu Val Gly Val Val Phe Leu
450 455 460

Pro Cys Gly His Leu Ala Thr Cys Asn Gln Cys Ala Pro Ser Val Ala
465 470 475 480

Asn Cys Pro Met Cys Arg Ala Asp Ile Lys Gly Phe Val Arg Thr Phe
485 490 495

Leu Ser

<210> 12
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<212> PRT
<213> Drosophila melanogaster

<400> 12

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1 5 10 15

Ser Ser Ser Ser Gly Ala Ser Gly Asn Ser Ser Pro His Asn His Pro
20 25 30

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Leu Pro Ser Ser Ala Ser Ser Ser Val Ser Ser Ser Gly Val Ser Ser
 35 40 45
 Ala Ser Ala Ser Ser Ala Ser Ser Ser Ser Ser Ala Ser Ser Asp Gly
 50 55 60
 Ala Ser Ser Ala Ala Ser Gln Ser Pro Asn Thr Thr Thr Ser Ser Ala
 65 70 75 80
 Thr Gln Thr Pro Met Gln Ser Pro Leu Pro Thr Asp Gln Val Leu Tyr
 85 90 95
 Ala Leu Tyr Glu Trp Val Arg Met Tyr Gln Ser Gln Gln Ser Ala Pro
 100 105 110
 Gln Ile Phe Gln Tyr Pro Pro Pro Ser Pro Ser Cys Asn Phe Thr Gly
 115 120 125
 Gly Asp Val Phe Phe Pro His Gly His Pro Asn Pro Asn Ser Asn Pro
 130 135 140
 His Pro Arg Thr Pro Arg Thr Ser Val Ser Phe Ser Ser Gly Glu Glu
 145 150 155 160
 Tyr Asn Phe Phe Arg Gln Gln Gln Pro Gln Pro His Pro Ser Tyr Pro
 165 170 175
 Ala Pro Ser Thr Pro Gln Pro Met Pro Pro Gln Ser Ala Pro Pro Met
 180 185 190
 His Cys Ser His Ser Tyr Pro Gln Gln Ser Ala His Met Met Pro His
 195 200 205
 His Ser Ala Pro Phe Gly Met Gly Gly Thr Tyr Tyr Ala Gly Tyr Thr
 210 215 220
 Pro Pro Pro Thr Pro Asn Thr Ala Ser Ala Gly Thr Ser Ser Ser Ser
 225 230 235 240
 Ala Ala Phe Gly Trp His Gly His Pro His Ser Pro Phe Thr Ser Thr
 245 250 255
 Ser Thr Pro Leu Ser Ala Pro Val Ala Pro Lys Met Arg Leu Gln Arg
 260 265 270
 Ser Gln Ser Asp Ala Ala Arg Arg Lys Arg Leu Thr Ser Thr Gly Glu
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280

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285

Asp Glu Arg Glu Tyr Gln Ser Asp His Glu Ala Thr Trp Asp Glu Phe
290 295 300

Gly Asp Arg Tyr Asp Asn Phe Thr Ala Gly Arg Glu Arg Leu Gln Glu
305 310 315 320

Phe Asn Gly Arg Ile Pro Pro Arg Lys Lys Lys Ser Ser Asn Ser His
325 330 335

Ser Ser Ser Ser Asn Asn Pro Val Cys His Thr Asp Ser Gln Pro Gly
340 345 350

Gly Thr Ser Gln Ala Glu Ser Gly Ala Ile His Gly His Ile Ser Gln
355 360 365

Gln Arg Gln Val Glu Arg Glu Arg Gln Lys Ala Lys Ala Glu Lys Lys
370 375 380

Lys Pro Gln Ser Phe Thr Trp Pro Thr Val Val Thr Val Phe Val Leu
385 390 395 400

Ala Met Gly Cys Gly Phe Phe Ala Ala Arg
405 410

<210> 13
<211> 138
<212> PRT
<213> *Drosophila melanogaster*

<400> 13

Met Ala Ile Ala Tyr Phe Ile Pro Asp Gln Ala Gln Leu Leu Ala Arg
1 5 10 15

Ser Tyr Gln Gln Asn Gly Gln Gln Thr Ala Ala Ser Pro Arg Thr Thr
20 25 30

Ala Thr Ala Ala Ala Pro Ser Gln Gln Gln Gln Ser Gln Gln Gln
35 40 45

Gln Gln Gln Gln Arg His His His Gln Gln Gln Arg Pro Gln Phe Arg
50 55 60

Ala Asn Ile Ser Val Pro Leu Gly Ser Gln Gln Gly Ser Met Thr Met
65 70 75 80

Ser Glu Phe Gly Cys Trp Asp Leu Leu Ala Gln Ile Phe Cys Tyr Ala
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85

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90

95

Leu Arg Ile Tyr Ser Tyr Ser Ser Ser Gln Arg Gln Pro Thr Val Ile
100 105 110

Gln Ile Ser Phe Glu Ile Ser Ser Gly Gly Gln Asn Asn Asp Glu Asp
115 120 125

Asp Val Thr Asp Ala Thr Ser Lys Glu Asn
130 135

<210> 14

<211> 65

<212> PRT

<213> *Drosophila melanogaster*

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Met Ala Val Ala Phe Tyr Ile Pro Asp Gln Ala Thr Leu Leu Arg Glu
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Ala Glu Gln Lys Glu Gln Gln Ile Leu Arg Leu Arg Glu Ser Gln Trp
20 25 30

Arg Phe Leu Ala Thr Val Val Leu Glu Thr Leu Arg Gln Tyr Thr Ser
35 40 45

Cys His Pro Lys Thr Gly Arg Lys Ser Gly Lys Tyr Arg Lys Pro Ser
50 55 60

Gln
65

<210> 15

<211> 66

<212> PRT

<213> *Homo sapiens*

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Tyr Glu Ala Arg Ile Phe Thr Phe Gly Thr Trp Ile Tyr Ser Val Asn
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Lys Glu Gln Leu Ala Arg Ala Gly Phe Tyr Ala Leu Gly Glu Gly Asp
20 25 30

Lys Val Lys Cys Phe His Cys Gly Gly Gly Leu Thr Asp Trp Lys Pro
35 40 45

Ser Glu Asp Pro Trp Glu Gln His Ala Lys Trp Tyr Pro Gly Cys Lys
50 55 60

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Tyr Leu
65

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<211> 66
<212> PRT
<213> Homo sapiens

<400> 16

Tyr Glu Ala Arg Ile Phe Thr Phe Gly Thr Trp Ile Tyr Ser Val Asn
1 5 10 15

Lys Glu Gln Leu Ala Arg Ala Gly Phe Tyr Ala Leu Gly Glu Gly Asp
20 25 30

Lys Val Lys Cys Phe His Cys Gly Gly Gly Leu Thr Asp Trp Lys Pro
35 40 45

Ser Glu Asp Pro Trp Glu Gln His Ala Lys Trp Tyr Pro Gly Cys Lys
50 55 60

Tyr Leu
65

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Ala Val Pro Cys
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<400> 18

Ala Val Pro Ile
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Ala Val Pro Phe
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Ala Arg Pro Ile
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Gly Val Pro Ile
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Ala Gly Pro Ile
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Ala Asx Val Pro Ile
1 5

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<400> 24

Ala Val Pro Trp
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<210> 25
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<400> 25

Ala Leu Pro Ile
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<400> 26

Ala Asx Val Pro Ile
1 5

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<400> 27

Ala Ile Pro Ile
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<400> 28

Ala Val Pro Tyr
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Ala His Pro Ile
1

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<400> 30

Ala Ile Pro Val
1

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<400> 31

Ala Ile Pro Tyr
1

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<400> 32

Ala Val Pro Leu
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<400> 33

Ala Val Pro Asp
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Ala Val Pro Thr
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Ala Val Pro Val
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Ala Val Pro Gly
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Ala Val Pro His
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Ala Val Pro Gln
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Ala Val Pro Ala
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Ala Val Pro Met
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Ala Val Pro Glu

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<400> 42

Ala Val Pro Asn

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<400> 43

Ala Val Pro Ser

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<210> 44

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Ala Val Pro Pro

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<400> 45

Ala Val Pro Lys

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Ala Val Pro Arg
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Ala Ile Pro Phe
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Ala Arg Pro Phe
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Ala Val Pro Ile Ala Gln Lys Ser Glu
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Ala Val Ala Val
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Ala Val Ala Ile
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Ala Val Ala Tyr
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Ala Thr Ala Val
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Ala Thr Ala Ile
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Ala Thr Ala Tyr
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Ala Thr Ala Phe
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Ala Ile Ala Val
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Ala Ile Ala Ile
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Ala Val Ala Phe
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Ser Val Pro Ile
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Ala Lys Pro Ile
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Ala Tyr Pro Ile
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Ala Cys Pro Ile
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Ala Met Pro Ile
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Ala Phe Pro Ile
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Ala Gln Pro Ile
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Ala Trp Pro Ile
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Ala Thr Pro Ile
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Ala Ser Pro Ile
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Ala Asn Pro Ile
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Ala Glu Pro Ile
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Ala Ala Pro Ile
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<400> 73

Ala Asp Pro Ile
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<220>
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Ala Pro Pro Ile
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 bond between residues 3 and 4

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Ala Arg Xaa Phe
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<220>
 <221> xaa is N-Methylproline, N-Methylation at the
 peptide bond between residues 3 and 4

<400> 76

Ala Val Xaa Phe

1

<210> 77
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<220>
 <221> Xaa is N-Methylalanine, N-Methylation at the
 peptide bond between residues 1 and 2

<400> 77

Xaa Val Pro Phe
 1

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 peptide bond between residues 1 and 2

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 <221> Xaa is N-Methylproline, N-Methylation at the
 peptide bond between residues 3 and 4

<400> 78

Xaa Val Xaa Phe
 1

<210> 79
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 <223> Synthetic Peptide

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 peptide bond between residues 3 and 4

<400> 79

Ala Val Xaa Ile
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<221> Xaa is N-Methylproline, N-methylation at the
peptide bond between residues 3 and 4

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Ala Arg Xaa Ile
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<210> 81
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<220>
<221> Xaa is N-Methylalanine, N-methylation at the
peptide bond between residues 1 and 2

<400> 81

Xaa Val Pro Ile
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<211> 4
<212> PRT
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<223> Synthetic Peptide

<400> 82

Ala Ile Ala Tyr
1

<210> 83
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<220>

<223> Synthetic Peptide

<400> 83

Ala Ile Ala Phe

1

<210> 84

<211> 4

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<220>

<223> Synthetic Peptide

<400> 84

Ala Thr Pro Tyr

1

<210> 85

<211> 4

<212> PRT

<213> Artificial

<220>

<223> Synthetic Peptide

<400> 85

Ala Thr Pro Val

1

<210> 86

<211> 4

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<213> Artificial

<220>

<223> Synthetic Peptide

<400> 86

Ala Thr Pro Phe

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<210> 87

<211> 4

<212> PRT

<213> Artificial

<220>

<222> 2

<223> Synthetic Peptide

<220>

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<221> Xaa is Leucine, which contains carbon 11

<400> 87

Ala Xaa Pro Ile

1